

**CLAIMS.**

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1. A network switch, comprising:  
a data port for communicating with a data network;  
a statistics counter connected to said data port for monitoring operational parameters associated with the data port, said statistics counter including statistics registers therein; and  
a statistics gathering circuit connected to said statistics counter for reading the statistics registers, and for directly transmitting data from the statistics registers to a remote system memory.
2. A network switch as recited in claim 1, further comprising direct memory access circuitry, wherein the statistics gathering circuit transmits the data from the statistics registers to the remote system memory via a DMA operation.
3. A network switch as recited in claim 1, further comprising a timer unit connected to said statistics gathering circuit for controlling said statistics gathering circuit to repeatedly read the statistics registers and repeatedly transmit the data from the statistics registers to the remote system memory after a predetermined period of time.
4. A network switch as recited in claim 3, wherein said timer unit comprises a register containing a timer value indicating a number of system clock cycles which determines the predetermined period.
5. A network switch as recited in claim 1, further comprising a CPU interface unit for interfacing the network switch to the remote CPU, said CPU interface unit comprising the statistics gathering circuit therein.
6. A network switch as recited in claim 5, wherein said CPU interface unit also comprises the statistics counter therein.
7. A network switch as recited in claim 1, said network switch comprising a communications channel therein, and wherein information is communicated from the data port to the statistics counter via the communication channel.

8. A network switch as recited in claim 7, wherein said statistics gathering circuit is connected to said statistics counter via the communication channel.

9. A network switch as recited in claim 1, said network switch comprising a plurality of data ports and a plurality of statistics counters therein, and wherein each data port of said plurality of data ports has at least one individual statistics counter associated therewith.

10. A network switch as recited in claim 1, wherein said statistics gathering circuit is configured to transmit the data from the statistics registers to a predetermined section of remote system memory, said network switch further comprising

a CPU interface unit which directs a remote CPU to identify where the data for the data port is stored in the predetermined section of remote memory.

11. A network switch as recited in claim 1, further comprising an active counter register which is configured to selectively enable statistics gathering from selected ones of the statistics registers.

12. A network switch as recited in claim 9, said network switch further comprising an active counter register which is configured to selectively enable statistics gathering by said statistics gathering circuit from selected ones of the plurality of statistics counters.

13. A method of monitoring port activity in a network switch, said method comprising the steps of:

storing port activity data in a statistics register on a network switch;  
reading the port activity data with a statistics gathering unit;  
transmitting the port activity data directly to a remote system memory, thereby reconstructing the statistics register in the remote system memory;  
accessing the remote system memory with a remote CPU to read the reconstructed statistics register.

14. A method as recited in claim 13, wherein said step of transmitting the port activity data comprises transmitting via a DMA operation.

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15. A method as recited in claim 13, further comprising a step of repeating the reading and transmitting steps at predetermined intervals.

16. A method as recited in claim 15, wherein said predetermined interval is a predetermined number of system clock cycles.

17. A method as recited in claim 13, wherein the step of storing port activity data comprises storing the port activity data in a plurality of statistics registers on a network switch, wherein the transmitting step comprises transmitting the port activity data to a remote system memory to thereby reconstruct the plurality of statistics registers in the remote system memory, and wherein the remote CPU accesses the remote system memory to read selected ones of the plurality of statistics registers.

18. A network switch for processing packets, said network switch comprising:

a data port for transmitting and receiving packets over a data network;

a tag insertion unit for inserting a stack-specific tag into a packet;

a processing unit for processing the packet in a stack of network switches in accordance with tag information in the stack-specific tag;

a removing unit for removing the stack-specific tag from the packet when the packet is being switched to a destination port;

a statistics counter connected to said data port for monitoring operational parameters associated with the data port, said statistics counter including statistics registers therein; and

a statistics gathering circuit connected to said statistics counter for reading the statistics registers, and for directly transmitting data from the statistics registers to a remote system memory.

19. A network switch as recited in claim 18, wherein said stack-specific tag inserted by said insertion unit includes information relating to at least one of stack count, trunk group information, and mirroring information.

20. A network switch as recited in claim 18, wherein the processing unit processes the packet by forwarding the packet to a mirroring port in accordance with mirroring information in the stack-specific tag.

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22. A network switch as recited in claim 18, further comprising a timer unit connected to said statistics gathering circuit for controlling said statistics gathering circuit to repeatedly read the statistics registers and repeatedly transmit the data from the statistics registers to the remote system memory after a predetermined period of time.

24. A network switch as recited in claim 23, wherein said CPU interface unit also comprises the statistics counter therein.

26. A method of handling packets in a network switch, said method comprising the steps of:

processing the incoming packet in a stack of network switches in accordance with tag information in the stack-specific tag;

reading the port activity data with a statistics gathering unit;

transmitting the port activity data directly to a remote system memory,  
thereby reconstructing the statistics register in the remote system memory;

accessing the remote system memory with a remote CPU to read the reconstructed statistics register.

